

**Project Name:** Integration of the Automated Weather Observing Systems/Road Weather Information Systems Phase 2 (AWOS/RWIS)

**OCIO Project #:**

**Department:** Transportation

**Revision Date:** 9/22/10

## Concept Statement

### Description

#### Brief description of the proposed project:

Conduct a feasibility study after the successful completion of AWOS/RWIS Phase 1 Pilot. The goal of the Integration of Automated Weather Observing Systems (AWOS) with Road Weather Information Systems (RWIS) project is to help provide more comprehensive and accurate meteorological data and greater area coverage for airport managers, air traffic controllers, pilots, and related operators of air ambulance services. Under the guidance of the Division of Aeronautics, the Division of Research and Innovation contracted with the Western Transportation Institute (WTI) at Montana State University to develop a prototype system by integrating currently used weather systems with systems used by aviation agencies. In particular, data from aviation AWOS and Automated Surface Observing Systems (ASOS) and surface transportation RWIS (The RWIS is a Department of Transportation (Caltrans) system managed by the Division of Traffic Operations.) were integrated to provide greater coverage for multiple agencies. Phase 1 primarily covered Northern California rural air services as the project is deployed further expansion of the area covered is anticipated.

### Need Statement

#### High Level Functional Requirements:

- The system is a web-based application. Pilots or operators from different airports can access the system through the Internet to view the weather information.
- The system integrates surface weather information, Caltrans CCTV, radar, satellite, winds aloft, and several other aviation-related weather data from different sources.
- The system uses the Google Maps API, HTML, DHTML, JavaScript, AJAX, PHP, XML, and Web 2.0 in presenting the user interface. This solution implements more robust mapping with Map, Satellite, Terrain, or Hybrid views of the mapped area. The Google Maps API facilitates the easy use of controls for Panning and Zooming into a desired section of the map. In addition, users are already generally familiar with the Google Maps interface.
- The system adopts a three-tier architecture (presentation, data and application logic tier), which improves scalability and performance.
- The system is easy to use and requires minimum training.

#### What is Driving This Need?

The project was initiated to meet the potential needs of providing airport managers, air traffic controllers, pilots, and related operators of air ambulance services with more comprehensive and accurate meteorological data by integrating currently used weather systems with systems used by related agencies. Implementing such an integrated system is expected to improve safety and increase efficiency in otherwise underserved areas, primarily rural. This includes small air fields and heliports used for emergency medical service (EMS) aircraft.

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**Risk to the Organization if This Work is Not Done:**

The continual lack of access to quick and accurate weather information for rural airports and heliports puts potential threats to the safety and efficiency of aviation operations. Especially for emergency medical helicopters that are supposed to save lives, they reported a record number of deaths aboard the aircraft in 2008. These flights are inherently more dangerous than commercial aviation. Pilots have little time to prepare for missions, and they must land in areas not designed for helicopters, dodging trees, power lines and buildings. "In fact, over the past two decades more than 200 EMS helicopters have crashed, killing at least 150 people."

Completing the Feasibility Study for the Integration of AWOS/ RWIS project is both vital and mission critical to the Department. This final phase of the project will increase safety and situational awareness in California by providing airport managers, air traffic controllers, pilots, and related operators of air ambulance services with more comprehensive and accurate meteorological data.

## CA - PMM

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## Benefit Statement

### Intangible Benefits

**Process Improvements** (describe the nature of the process improvement):

1. Improvement of airport efficiency case studies have shown that accurate weather data reduces delay and congestion, and increases airport capacity.
2. The reduction of EMS accidents related to the weather.

**Other Intangible Benefits:**

To Be Determined in the Feasibility Study.

### Tangible Benefits

**Revenue Generation** (describe how revenue will be generated):

To Be Determine in the Feasibility Study.

**Cost Savings** (describe how cost will be reduced):

To Be Determined in the Feasibility Study.

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### Cost Avoidance (describe the cost and how avoided):

1. If one "severe injury" can be avoided each year for the whole state of California, the cost savings will be more than \$1,000,000 per year.
2. One fatal accident avoided results in a cost savings of \$5,800,000.
3. Integrated weather information system can also provide benefits to ground transportation by promoting surface transportation weather services for maintaining and operating the California highways.


### Risk Avoidance (describe the risk and how avoided):

1. Reduction of life lost due to lack of an integrated weather system for rural areas.

### Improved Services:

1. The reduction of EMS accidents related to the weather. This also reduces the response time of emergency crews and transport time of accident victims.
2. A user-friendly web access integrated weather system as developed in the previous successful pilot.

## Consistency

"No" Responses 		Rationale	Action Required
Enterprise Architecture			
Business Plan			
Strategic Plan			

## Impact to Other Entities

### Nature of Impact to Other Entities

**Entity:** Rural Airports

*Describe the nature of the impact:*

Real time integrated weather conditions available through the Internet.

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**Entity:** Emergency Medical Services (EMS)

*Describe the nature of the impact:*

Weather condition at airports, heliports, and the site of accidents where EMS services are required via a user-friendly system.

**Entity:**

*Describe the nature of the impact:*

**Entity:**

*Describe the nature of the impact:*

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## Solution Alternatives

### Alternative 1:

To Be Determined in the Feasibility Study.

### Technical Considerations for Alternative 1:

ROM Cost:

to

Note: high end of range must not exceed 200% of low end of range

### Alternative 2:

### Technical Considerations for Alternative 2:

ROM Cost:

to

Note: high end of range must not exceed 200% of low end of range

### Alternative 3:

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### Technical Considerations for Alternative 3:

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ROM Cost: to

Note: high end of range must not exceed 200% of low end of range

## Recommendation

### Comparison:

Alternative 1	ROM Cost	Risk
	\$0 - \$0	
Alternative 2	ROM Cost	Risk
	\$0 - \$0	
Alternative 3	ROM Cost	Risk
	\$0 - \$0	

### Conclusions:

1	
2	
3	
4	

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**Recommendation:**

### Project Approach (if known)

System Complexity:		System Business Hours: (e.g., 24x7, 9am-5pm) :	To Be Determined in the Feasibility Study.	
Architecture	<input type="checkbox"/> Mainframe <input type="checkbox"/> Client Server <input type="checkbox"/> Web Based		Num. of New Databases:	
Technology	<input type="checkbox"/> New <input type="checkbox"/> New to Staff <input type="checkbox"/> In-House Experience		Interfaces:	
Implementation	<input type="checkbox"/> Central Site <input type="checkbox"/> Phased Roll-out		Num. of Sites:	
M & O Support	<input type="checkbox"/> Contractor <input type="checkbox"/> Data Center <input type="checkbox"/> Project <input type="checkbox"/> In House			
Procurement Approach:			Number of Procurements:	
Open Procurement?		Delegated Procurement?		
Scope of Contract	<input type="checkbox"/> Development <input type="checkbox"/> Implementation <input type="checkbox"/> M & O <input type="checkbox"/> Other: _____			
Anticipated Length of Contract:		Years / _____ extensions for _____ years		